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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,171	07/10/2003	Alfred I-Tsung Pan	10006771-3	4363
22879 7590 06/26/2009 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				
EXAMINER MAPLES, JOHN S				
ART UNIT 1795		PAPER NUMBER		
NOTIFICATION DATE 06/26/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/618,171

**Applicant(s)**

PAN, ALFRED I-TSUNG

**Examiner**

John S. Maples

**Art Unit**

1795

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12, 13, 15-18 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12, 13, 15-18, 25 and 26 is/are allowed.
- 6) ☒ Claim(s) 27-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ ~~Notice of Informal Patent Application~~
- 6) ☐ Other: \_\_\_\_\_

1. Claims 27-32, 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Rajendran-US 5,981,097. (Rajendran)

Rajendran teaches in Figure 1 and column 1, lines 20-37; column 7, line 24 through column 8, line 16, a proton exchange membrane for a fuel cell, which membrane is located between a first flexible circuit 30/16-anode, including a first flexible substrate 30 and a second flexible circuit 22/18-cathode, including a second flexible substrate 22. Each of the said circuits in Rajendran include respective porous layers 16 and 18 for the passage of fuel and oxidant through pores/openings in the porous layers-see column 7, line 57 through column 8, line 3 therein. The first circuit includes a catalyst 30 and the second circuit includes a catalyst 22. The two circuits are flexible because the materials making up the same are flexible. It is noted that the outer surfaces of the membrane and the circuits comprise the passage of claim 32.

Applicant's arguments have all been considered but are not deemed persuasive. Applicant argues that the fuel cell in Rajendran is not flexible. First of all, it is noted that this is not what is specifically claimed in claim 27. Claim 27 recites two flexible substrates. Column 7, line 57 through column 8, line 16 of Rajendran sets forth flexible materials for both the anode and cathode materials with conductive paper or cloth being listed; which materials inherently are flexible.

Applicant further argues that Rajendran does not teach the pores distributing fuel using capillary action. This argument is also not persuasive because column 7, lines 57-64 along with column 8, lines 35-37 as cited by applicant set forth a porous layer at both the anode and the cathode that permits fuel to pass therethrough. There would

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inherently be capillary action in the porous layer that enables the fuel to pass through this layer.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajendran in view of both Steyn and Todd et al.-US 6,197,145. (Todd)

The only claimed features not taught by Rajendran are the cylindrical shape of the fuel cell with fuel-methanol fed through the inside thereof and oxidant fed on the outside thereof and for the dry film adhesive between the two flexible substrates. Steyn teaches a cylindrical flexible fuel cell configuration with fuel-methanol fed on the inside thereof and oxidant fed on the outside thereof-see column 3, line 52 through column 5, line 50. To have formed the fuel cell of Rajendran in the cylindrical form as taught by Steyn would have been obvious so that the said fuel cell could be used in more compact environments. Todd teaches a method of attaching flexible plastic films having electronic circuitry via a dry film adhesive. It would have been obvious to have joined the flexible substrates in Rajendran as taught by Todd so that the substrates would not come apart if bumped and the circuitry would remain more reliable.

Applicant has not specifically argued the above rejection of claims 33-36 based on the above combination of references and so no rebuttal is necessary.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John S. Maples/

John S. Maples  
Primary Examiner  
Art Unit 1795

JSM/6-22-2009